



UNITED STATES PATENT AND TRADEMARK OFFICE

119
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,323	03/18/2004	Ming-Wei Hsu	252206-1070	6554
24504	7590	12/27/2006	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			CONNOLLY, MARK A	
			ART UNIT	PAPER NUMBER
			2115	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/27/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/803,323	HSU ET AL.	
	Examiner	Art Unit	
	Mark Connolly	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 October 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4,6-8,10-18 and 20-23 is/are rejected.
- 7) Claim(s) 5,9 and 19 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 March 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/24/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-23 have been presented for examination.
2. The rejections are respectfully maintained and reproduced infra for applicant's convenience.

Drawings

3. Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-4, 6-8, 10-18 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art [AAPA] in view of Cheok et al [Cheok] US Pat No 6732280.
6. Referring to claim 1, AAPA teaches the method substantially including:

- a. enabling the CPU to output a power management signal to the south bridge via the north bridge [page 2 lines 6-8].
- b. enabling the south bridge to respond with a stop clock cycle to the CPU according to the power management signal [page 2 lines 10-11].
- c. enabling the CPU to respond with a stop grant message according to the stop clock signal [page 2 lines 13-14].
- d. enabling the north bridge to receive the stop grant message and at least one peripheral coupled to the north bridge [page 2 line 15 and page 3 lines 1-4].
- e. enabling the north bridge to pass the stop grant message to the south bridge after the north bridge receives the acknowledge signal [page 2 lines 15-16].
- f. enabling the south bridge to output a power control signal after the south bridge receives the stop grant message [page 2 lines 17-18].
- g. enabling the power supply to suspend a corresponding power after the power supply receives the power control signal [page 2 lines 22-23].

The AAPA does not explicitly teach enabling the north bridge to analyze a power supply mode in the stop grant message, and enabling the north bridge to output a state transition signal to the at least one peripheral if the power supply mode is to suspend a main power supplied from the power supply or enabling the at least one peripheral to respond with an acknowledge signal after the at least one peripheral finishes its state transition according to the state transition signal. In summary, the AAPA does not teach notifying peripherals coupled to a bridge to prepare for a transition to a sleep state if a transition for a system to enter a sleep state is requested. Cheok explicitly teaches a bridge notifying peripherals (via microcontroller 300) of an impending

request to transition a system to a sleep state, the peripherals then perform "housekeeping" functions then send an acknowledgement in order to finish the transition [col. 4 lines 27-37, col. 10 line 60- col. 11 line 3 and col. 11 lines 27-30]. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the teachings of Cheok into the AAPA system because it would provide a means for peripheral devices to enter and exit sleep states in synchronism with a processor thus reducing the likelihood of failure for the devices on a subsequent boot operation [abstract and col. 2 lines 33-44]. Furthermore, hyper transport I/O link protocol is well known in the art to couple a processor with a north bridge. It is obvious that the processor in the AAPA would be coupled to the north bridge via hyper transport I/O link because it provides a high speed link between the high speed processor and north bridge.

7. Referring to claim 2, the AAPA teaches connecting peripherals to a bridge via PCI-e bus [page 2 lines 1-4].

8. Referring to claim 3, Cheok teaches preparing the peripheral devices for sleep [col. 10 line 60-col. 11 line 3]. This is interpreted as a L2/L3 ready state.

9. Referring to claims 4 and 6-8, these are rejected on the same basis as set forth hereinabove. AAPA and Cheok teach the method and therefore teach the system performing the method. It is obvious that the AAPA-Cheok system would comprise a decoder so that the power management signals sent from the processor could be recognized therefore enabling the system to act accordingly. Without a decoder, it would be impossible to distinguish the power management signals from other signals sent from either the processor or other device within the system.

Art Unit: 2115

10. Referring to claims 10-18 and 20-23 these are rejected on the same basis as set forth hereinabove.

Allowable Subject Matter

11. Claims 5, 9 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments filed 17 October 2006 have been fully considered but they are not persuasive.

13. In the REMARKS, applicant argues in substance that 1) Cheok does not teach any sort of communication between a north bridge and a peripheral or compatibility with the hyper transport link 2) the references lack motivation to combine.

14. In response to argument 1, the examiner agrees with applicant that Cheok does not explicitly teach communications between a north bridge and a peripheral. Rather Cheok does teach communications between a south bridge and a peripheral wherein the south bridge sends a notification of an impending request to transition the system to a sleep state then receive an acknowledgement allowing the transition to complete¹. The examiner asserted that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the AAPA to allow a bridge to notify its peripherals of an impending sleep request and receive an acknowledgment from the peripherals because it would provide a means for peripheral devices to

¹ As argued in the previous office action.

enter and exit sleep states in synchronism with a processor thus reducing the likelihood of failure for the devices on a subsequent boot operation.

The primary difference between a north and south bridge is that a north bridge acts as an interface for any high speed peripherals while the south bridge is the interface for slower speed peripherals. Other than communicating to faster/slower speed peripherals via different protocols, the two function substantially similar to each other. Although Cheok was specific to a south bridge, one of ordinary skill would recognize that the same teachings could also be applied to a north bridge since both have peripherals coupled to them and by applying the same teachings to the north bridge, high speed peripherals could realize the same benefits as those slower speed peripherals coupled to the south bridge. There is no unpredictability of success in applying the above teachings to a north bridge and one of ordinary skill would have been able to make the necessary changes to apply the above teachings to a north bridge.

The examiners argument is further reinforced by applicants own words as seen on page 11 lines 5-10 of the REMARKS filed 10/16/06 which clarifies the prior computer system taught by the AAPA which states:

The north bridge receives and analyzes the stop grant message to identify a power supply mode. If the power supply mode is to be suspended the main power supplied from the power supply, the north bridge outputs a state transition signal to the peripheral. The north bridge receives an acknowledge signal from the peripheral and passes the stop grant message to the south bridge after receiving the acknowledge signal.

Apparently, the AAPA already comprises the means for the north bridge to communicate with its peripherals to alert them of a power state transition and receive an acknowledgement

back from the peripheral which further obviates the ability to make the necessary modifications to apply the teachings of Cheok to the north bridge.

1. In response to argument 2, the test of obviousness is:

"whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention," *In re Gorman*, 933 F.2d at 986, 18 USPQ2d at 1888.

Subject matter is unpatentable under section 103 if it "would have been obvious . . . to a person having ordinary skill in the art." While there must be some teaching, reason, suggestion, or motivation to combine existing elements to produce the claimed device, it is not necessary that the cited references or prior art specifically suggest making the combination." *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988).

"Such suggestion or motivation to combine prior art teachings can derive solely from the existence of a teaching, which one of ordinary skill in the art would be presumed to know, and the use of that teaching to solve the same [or] similar problem which it addresses." *In re Wood*, 599 F.2d 1032, 1037, 202 USPQ 171, 174 (CCPA 1979).

"In sum, it is off the mark for litigants to argue, as many do, that an invention cannot be held to have been obvious unless a suggestion to combine prior art teachings is found *in* a specific reference."

Entire quote from *In re Oetiker*, 24 USPQ2d 1443 (CAFC 1992).

Furthermore as recognized and cited by applicant on page 15 lines 11-12 of the REMARKS, "Evidence of a suggestion, teaching, or motivation to combine prior art references may flow, *inter alia*, from the references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved."

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Connolly whose telephone number is (571) 272-3666. The examiner can normally be reached on M-F 8AM-5PM (except every first Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on (571) 272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/803,323
Art Unit: 2115

Page 9

Mark Connolly
Examiner
Art Unit 2115

mc
December 13, 2006


CHUN CAO
PRIMARY EXAMINER